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# UNITED STATES PATENT AND TRADEMARK OFFICE

## BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 28

Application Number: 08/845,897

Filing Date: April 28, 1997

Appellant(s): IMAM ET AL.

**MAILED**

APR 10 2001

John J. Karasek  
For Appellant

**GROUP 1700**

## EXAMINER'S ANSWER

This is in response to appellant's brief on appeal filed February 16, 2001.

### **(1) Real Party in Interest**

A statement identifying the real party in interest is contained in the brief.

### **(2) Related Appeals and Interferences**

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

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**(3) Status of Claims**

The statement of the status of the claims contained in the brief is correct.

**(4) Status of Amendments After Final**

A statement of the status of amendments after final rejection is contained in the brief.

**(5) Summary of Invention**

The summary of the invention contained in the brief is correct except that Claim 3 should include polyimides. As written, the Appellant's statement claims polyamides twice.

**(6) Issues**

The Appellant's statement of the issues in the brief is correct except Issue A, as is set forth in Paper No. 16, should read:

- A. Whether claims 1-4, 7, 11, 19 and **22** are anticipated by Tsang et al. (USPN 4,605,595) under 35 U.S.C. § 102(b).

**(7) Grouping of Claims**

The claims stand or fall together.

**(8) ClaimsAppealed**

A substantially correct copy of appealed claim 3 appears on page 3 of the Appendix to the appellant's brief. The minor errors are as follows: The Appellant's statement claims polyamides twice. It should include polyimides. Claim 3 should read:

3. The composite article of claim 1, wherein said polymer is selected from the groups consisting of epoxies, acrylics, hardened silicones, polyurethanes, polyimides, polyvinyls, polycarbonates, hardened natural rubbers, hardened synthetic rubbers, phenolics, polyolefins, polyamides, polyesters, fluoropolymers, poly(phenylene ether ketones), poly(phenylene ether sulfones), poly(phenylene sulfides) and melamine-formaldehyde resins.

**(9) Prior Art of Record**

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

4,605,595	Tsang et al.	08-1986
4,759,000	Reitz	07-1988

## **(10) *Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-4, 7, 11, 19 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsang et al (USPN 4,605,595) as was set forth in section 3 of Paper No. 16. Tsang discloses an open foam structure comprised of sheets of aluminum which

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are vacuum impregnated with a slurry of an epoxy resin binder which contains fillers and/or friction modifiers so as to produce a filled foam structure.

Claims 1-4, 7, 19 and 22 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Reitz (US 4,759,000) as was set forth in section 5 of Paper No. 16. Therein, it was set forth that Reitz discloses the claimed invention except for literally disclosing that the metal foam is an open celled foam. However, it appears that the foam must inherently be an open cell foam because the pores of the foam are filled with the impregnate (Column 9 line 67 to Column 10 line 11). It is further noted that Reitz discloses a hardened silicon rubber, which reads on Appellant's definition of a non-elastomeric polymeric matrix (See Claim 3 and Page 9 of specification).

Claims 17, 18, 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Tsang (USPN 4,605,595) or Reitz (US 4,759,000) as set forth in section 6 of Paper No. 16. With regard to claim 17 and 18, neither Tsang nor Reitz specifically disclose pore size or the pore size relationship of the pores of the metal foam. However, it is well known in the art that the pore size distribution directly effects the properties of the foam. It would have been within the level of ordinary skill in the art to have used a uniform pore sized foam, motivated by the desire to obtain a foam having substantially uniform properties along the entire length of the foam. Likewise, it would have been obvious to the skilled artisan to use a foam with a gradation of pore sizes, motivated by the desire to obtain a foam with properties that vary along its length.

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With regard to claim 20, a laminate containing a plurality of impregnated metal foam sheets is not literally disclosed in Tsang or Reitz. However, the skilled artisan would have found it obvious to form a laminate containing a plurality of like impregnated metal foam sheets, motivated by the desire to further enhance the properties exhibited by the use of one impregnated metal foam sheet.

With regard to claim 21, neither Tsang nor Reitz specifically discloses the thickness of the metal foam being no less than 3 times the average diameter of the cells. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have optimized either the thickness of the metal foam or the average cell diameter of the metal foam, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Aller*, 105 USPQ 233. In the present case, it would have been obvious to the skilled artisan to prepare a thicker metal foam, motivated by the desire to enhance the tensile strength and barrier properties of the metal foam. Additionally, it would have been obvious to the skilled artisan to prepare a metal foam having a smaller average cell diameter, motivated by the desire to have optimized the compressive, flexural, shear and tensile strength of the resulting impregnated foam.

#### **(11) Response to Argument**

Appellant disagrees that the impregnate of Tsang anticipates the claimed polymer impregnate because Tsang teaches the use of fillers, frictional modifiers, and

reinforcing fibers in the epoxy resin. Appellant argues that the cells must be completely filled with the resin, and that these fillers, frictional modifiers, and reinforcing fibers would prevent the polymer impregnate from completely filling the cells of the metal foam. However, Appellant's claims read on embodiments where the impregnate contains fillers. The following passage appears on Page 8 of Appellant's specification: "The resin component may be a neat resin or a neat blend of resins, or may include any catalysts, curing agents, or additives desired." Therefore, Appellant's polymer may include "any" desired additives. Moreover, the composition of Tsang, which includes both resin and filler, fully fills the cells of the metal foam (Column 4 lines 22-35) and reads on Appellant's claims.

Appellant also contends that Reitz does not disclose a non-elastomeric polymeric matrix. However, Reitz discloses the use of a hardened silicon rubber (Column 9 line 66 to Column 10 line 11) which reads on Appellant's definition of a non-elastomeric polymeric matrix (Claim 3 and Page 9 of specification). Additionally, Appellant argues that Reitz is directed to "an acoustic window, not an acoustically absorptive material." However, it has been set forth that "Arguments that the alleged anticipatory prior art is nonanalogous art' or teaches away from the invention' or is not recognized as solving the problem solved by the claimed invention, [are] not germane' to a rejection under section 102." Twin Disc, Inc. v. United States, 231 USPQ 417, 424 (Cl. Ct. 1986) (quoting *In re Self*, 671 F.2d 1344, 213 USPQ 1, 7 (CCPA 1982)).

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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lmr  
April 6, 2001

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